

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY


(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

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| Applicant's or agent's file reference X3155-PCT | | FOR FURTHER ACTION | | See Form PCT/PEA/416 |
| International application No. PCT/BE2004/000168 | | International filing date (day/month/year) 29.11.2004 | Priority date (day/month/year) 28.11.2003 | |
| International Patent Classification (IPC) or national classification and IPC INV. B65H23/032 | | | | |
| Applicant PUNCH GRAPHIX XEIKON INTERNATIONAL N.V. et al. | | | | |
| <p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 9 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau) a total of 10 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> | | | | |
| <p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input checked="" type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</p> | | | | |
| Date of submission of the demand 28.09.2005 | | Date of completion of this report 24.03.2006 | | |
| Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 | | Authorized officer Pollet, D Telephone No. +49 89 2399-7516 | | |



**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/BE2004/000168

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

Description, Pages

| | |
|-----------------------------|--|
| 1, 2, 4-6, 8-11, 13-15 | as originally filed |
| 3, 3bis, 7, 7bis, 12, 12bis | received on 30.09.2005 with letter of 28.09.2005 |

Claims, Numbers

| | |
|------|--|
| 1-18 | received on 30.09.2005 with letter of 28.09.2005 |
|------|--|

Drawings, Sheets

| | |
|------------|---------------------|
| 1/10-10/10 | as originally filed |
|------------|---------------------|

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/BE2004/000168

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | |
|-------------------------------|-------------|------|
| Novelty (N) | Yes: Claims | 1-18 |
| | No: Claims | |
| Inventive step (IS) | Yes: Claims | 1-18 |
| | No: Claims | |
| Industrial applicability (IA) | Yes: Claims | 1-18 |
| | No: Claims | |

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Reference is made to the following document:

D1: US-A-5 685 471

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

V.1 Novelty and inventive step

Document D1 cited in the description is regarded as being the closest prior art to the subject-matter of claim 1, and shows a web alignment device (PZ) to align a web of continuous print medium (A) having two outer edges and originating from an upstream device (11) to a stable lateral position with respect to a printing system (DA) for further printing on said continuous web, the printing system having a drive system (8, 13) downstream of the web alignment device (PZ), the alignment device comprising: mechanical means (2) for defining an entry position of a web, the web contacting the mechanical means in sliding or rolling, the web being supplied as a nearly tension free loop (12), braking means (6) to reduce the tension-force per unit of medium width at the end of an alignment zone compared to the tension force per unit of medium width downstream as exerted by the drive system of the printing system, means (3) defining a curved or partially curved first web movement trajectory including areas where the print medium slides in friction contact with a curved surface, the means for defining the curved or partially curved first web movement trajectory being located upstream of said braking means (6), and adjustable lateral guiding means (5) with side guides on both side edges of the web (see fig. 2) adjustable in width to contact, at either of the two outer edges (col. 3, l. 42-48) of said print medium, thus limiting the lateral movement dimension available for said print medium in two opposing directions, the adjustable guiding means extending over a finite second web movement trajectory of said print medium, wherein the finite second web movement trajectory extends in the upstream direction to further than said means (2) for defining the entry position and comprises at least a part of the first trajectory where said print medium is in sliding contact with said means defining said curved or partially curved first trajectory. A slanted friction roller (4) ensures the

forced contact to the adjustable lateral guiding means (5) (see fig. 2). However, this solution is not appropriate for heavy high gloss substrates since it might damage the medium.

The subject-matter of claim 1 differs from this known device in that the sliding zone of the first web movement trajectory extends over a finite length $L1 > \max(50 \text{ mm, medium width} / 4)$, and in that the length of simultaneous side guiding and support for sliding ($L2$) satisfies the relationship $L2 > 2/3 \max(50 \text{ mm, medium width} / 4)$.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

The problem to be solved by the present invention may be regarded as providing an alternative passive alignment system for continuous media (e.g. heavy high gloss substrates).

The solution to this problem proposed in claim 1 of the present application taking the clarity into consideration (see item VIII) *appears* to involve an inventive step (Article 33(3) PCT). In the passive alignment system according to the present application the guiding means is dimensioned either as a minimum value (i.e. 50 mm; $100/3 \text{ mm}$) or related to the medium width. No hint or indication to this feature can be found in the cited prior art document.

The same reasoning applies, *mutatis mutandis*, to the subject-matter of corresponding independent method claim 13.

Claims 2-12 and 14-18 are dependent respectively on claims 1 and 13 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

V.2 Industrial applicability

Since it appears that the claimed invention can be made or used in a technological sense in industry, the claimed invention appears to have industrial applicability within the meaning of Article 33(4) PCT.

Re Item VII

Certain defects in the international application

The description is not in conformity with the claims as required by Rule 5.1(a)(iii) PCT (e.g. p. 3 '...the present invention provides a web alignment device..., the printing system having a friction drive downstream...', '...print medium or other medium...'; etc).

The independent claims are not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate, with those features known in combination from the prior art (document D1) being placed in the preamble (Rule 6.3(b)(I) PCT) and with the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).

Re Item VIII

Certain observations on the international application

The application does not meet the requirements of Article 6 PCT, because claims 1-4, 7-10, 12-14, and 17-18 are not clear.

The relative formulation *a nearly tension free loop* in claims 1 and 13 has no well-recognised meaning and leaves the reader in doubt as to what extent the loop is tension free (see claims 4 and 14). The applicant's attention is drawn to the fact that the meaning of the terms of a claim should be clear from the wording of the claim **alone** (see the PCT Guidelines 5.31). Furthermore, with respect to the first web movement trajectory it is unclear what the difference is between *curved or partially curved*. According to the description p. 10, l. 20 ff. the sliding length corresponds either to a curvature (i.e. C-D in Fig. 1b) or to a sum of curvatures (i.e. C1-D1 and C2-D2 in Fig. 5). A non-curved trajectory segment (e.g. D1-C2) appears to be not incorporated.

Claim 1 defines *a sliding zone* (i.e. areas where the print medium slides in friction contact with a curved surface; C-D areas?) of the curved or partially

curved first web movement trajectory extending over a finite length L_1 satisfying the relation $L_1 > \max(50 \text{ mm}, P/4)$. However, according to the description p. 11, l. 5-7 this condition is satisfied when the web material is guided by the adjustable plates **only** (i.e. $L_{\text{side guided}}$, determined by the distance A to B). Hence, it is fully unclear whether the finite length L_1 defines $L_{\text{side guided}}$ or $L_{\text{supported}}$ (see also claim 13) Furthermore, it is unclear what is meant by the wording *adjustable lateral guiding means with side guides on both side edges adjustable in width*. According to the description, the adjustable lateral guiding means **are** the side guides (4, 5) on both side edges of the web (see e.g. p. 5, l. 5). In addition, it is unclear in case only one outer edge of the print medium is to be contacted, how then the lateral movement dimension available for said print medium is limited *in two opposing directions* (i.e. must contact both edges?). According to the method claim the print medium is centred by guiding both lateral edges in the lateral direction. Note also that in the part of the first trajectory, the print medium is in *frictional* sliding contact with said means defining said curved or partially curved first trajectory.

Claim 2 defines *an* alignment zone. Hence, it is unclear whether this alignment zone is the alignment zone defined already in claim 1 or a different alignment zone.

Claim 3 is incomprehensible! Firstly, it is unclear whether a finite second web movement trajectory is the finite second web movement trajectory defined already in claim 1 or a different trajectory. Secondly, it is fully unclear how this trajectory is defined in relation to the device and what the difference is with the relation for L_1 . (see also claims 12 and 17)

The feature in the apparatus claim 4 relates to a method of using the apparatus rather than clearly defining the apparatus in terms of its technical features. Note that the loop does not form part of the device. The intended limitations are therefore not clear from this claim.

The features of claim 7 appear to be already present in independent claim 1.

The feature of the adjustable parallel flanges adjustable in the lateral direction in claim 8 appears to be already present in independent claim 1.

The term *flexing means* used in claim 9 is vague and unclear and does not enable the skilled person to determine which technical features are necessary to perform the stated function of preventing wrinkles.

In claim 10 it is unclear what is meant by *whose length* (i.e. the extension of the means or the width?).

Independent method claim 13 defines that a print medium is guided at a reduced tension of said print medium compared to the downstream tension imposed by a drive of the printing system, ***such that the print medium forms a nearly tension free loop prior to entering into sliding contact in a sliding zone.*** However, it is fully unclear how the fact of a nearly tension free loop (at the entry means) can be the consequence of a print medium being guided at a reduced tension compared to the downstream tension. According to the description (see p. 4, l. 3-9; p. 9, l. 9-17) the web is simply supplied to the entry means as a nearly tension free loop! It is also not clear that *a drive (7, 8)* is part of the drive system (7, 8) of the printing system. Note further that the medium is entering into *frictional* sliding contact in a sliding zone. Furthermore, it is unclear what is meant by the wording '*...L2 being the length of simultaneous side-guiding and support for sliding length (L2) of the second trajectory...*'. Finally, the claim is inconsistent with the device claim in that no *means for defining an entry position, braking means to reduce the tension force per unit medium width* (see claim 18), or *side guides* are defined.

From the wording of claim 14 it is unintelligible how a nearly tension free loop can **generate** a tension of 2×10^{-2} N/m per gram per square meter of web material. Note that tension in a loop is either created by the devices driving the

loop or inherent in the loop because the material has a certain stress (e.g. elastic material).

Claim 18 defines braking means at the end of an alignment zone. However, it is fully unclear where the alignment zone is defined. Note also that according to claim 1 the braking means is located downstream the means for defining the curved or partially curved first web movement trajectory.

Features in independent claims can not be addressed in the description as optional (p. 4, l. 2-4; p. 5, l. 25-26; p. 8, l. 33 etc).

The vague and imprecise statement in the last paragraph of the description on page 15 implies that the subject-matter for which protection is sought may be different to that defined by the claims, thereby resulting in lack of clarity (Article 6 PCT) when used to interpret them.